

Personality Characteristics of Successful Navy Submarine Personnel

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This study evaluated the personality characteristics of senior enlisted and occupationally successful Navy submarine personnel. One hundred subjects completed the Schedule for Nonadaptive and Adaptive Personality (SNAP). Results indicated that the traits of detachment, propriety, and workaholicism were most descriptive of the sample. Thirty-seven percent met SNAP criteria for a personality disorder, typically antisocial, obsessive-compulsive, or avoidant. The results are discussed in terms of adaptation to environmental demands aboard submarines. Suggestions for further research are offered.

Introduction

Submarine duty in the United States Navy may constitute one of the most stressful and psychologically demanding work environments in the military. Salient stressors include extremely small work and living space, absence of day-night cues, confinement, isolation from all interaction with the external world, monotony in routine, extended separations from family members, and prolonged and potentially dangerous operational responsibilities.^{1,2} While contending with extremely cramped sleeping and living spaces as well as prolonged and unpredictable submersions, submarine personnel share an ongoing awareness of the mortal consequences of mechanical failure or human error.

Each year approximately 3,000 to 4,000 Navy personnel volunteer for submarine candidacy. In addition to adventure, these volunteers cite the lure of incentives such as additional pay and educational opportunities.³ Given the taxing nature of submarine duty and the self-selecting candidacy process, it is possible that submarine personnel constitute a psychologically homogeneous population.⁴ Previous research regarding personality traits of submarine personnel is sparse and has generally employed the Minnesota Multiphasic Personality Inventory (MMPI).⁵ The MMPI is a self-report, 566-item, forced-choice (true/false) test that is widely utilized for identification of psychological pathology.

The scanty MMPI research has not offered consistent findings. Weybrew and Noddin⁶ administered the MMPI to 1,103 submarine personnel (870 enlisted and 143 officers). As a group, this sample did not exhibit significant psychopathology.

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Nonetheless, significant elevations were noted among a small percentage of the sample on the following clinical scales: hysteria (6%), psychopathic deviate (16%), paranoia (6%), and psychasthenia (11%). A subsequent study⁷ reported MMPI results from a sample of 160 Navy divers, many of whom were assigned to submarine duty. Again, as a group these members did not display significant psychopathology. Individual scale analyses were not reported. These data appear to indicate relatively little psychopathology among submarine personnel and are congruent with the comparatively low attrition rate found in this population.⁸

Additional research has evaluated the frequency of personality pathology among submarine personnel who are disqualified from service.^{6,9,10} Reasons for disqualification include physical and mental disorders, difficulty with family separation, and syndromes most common in submarine environments (e.g., claustrophobia). These studies are consistent in reporting that among personnel disqualified for psychiatric reasons, 30 to 40% meet criteria for a personality disorder diagnosis.¹¹

There are two major concerns with the sparse research relative to personality functioning in submarine personnel. First, there exists no research on submarine personnel who successfully adapt to submarine careers. Previous research efforts have understandably been directed at elucidating the sources of failure to adapt. Second, the majority of studies have utilized the MMPI, which is not designed to assess the personality characteristics of nonpsychiatric populations.^{5,12,13} The MMPI is well suited for identification of major axis I psychiatric disorders¹¹ but is ill suited for detecting specific and nonpathologic personality traits.

The current study was designed with these shortcomings in mind and specifically focused on the personality characteristics of successful Navy submarine enlisted personnel utilizing a psychological inventory explicitly designed for use with nonpsychiatric populations. The intent of the study was to identify personality traits that correlate with successful adaptation to submarine duty by examining the personality profiles of clearly successful submariners.

Method

Subjects

One hundred enlisted men assigned to a Navy submarine squadron volunteered to participate in this study. All subjects were of the rank of Chief Petty Officer (E-7) or above. Typically, a submariner must serve a minimum of 9 years before achieving this rank. Most of this time would be served in submarine billets. The sample was limited to senior enlisted personnel because these individuals have generally demonstrated ability and sustained high performance as consistently promoted members of the submarine force.

Instrument

The single measure utilized in the current study was the Schedule for Nonadaptive and Adaptive Personality (SNAP).¹⁴ The SNAP is a 375-item, forced-choice (true/false) self-report inventory that can be administered individually or in group settings. The SNAP requires approximately 1 hour to complete and measures many adaptive and nonadaptive personality traits. Specifically, the SNAP offers six validity scales that measure dishonest or at least biased response styles. The SNAP also measures the following personality traits: mistrust, manipulativeness, aggression, self-harm, eccentric perceptions, dependency, exhibitionism, entitlement, detachment, impulsivity, propriety, and workaholism. These traits, in various combinations, serve as the basis for an additional 13 diagnostic scales that assess the presence of specific personality disorders. These are: paranoid, schizoid, schizotypal, antisocial, borderline, histrionic, narcissistic, avoidant, dependent, obsessive-compulsive, passive-aggressive, sadistic, and self-defeating.

Each SNAP scale is normed with a mean of 50 and a standard deviation of 15. Initial psychometric evaluation of the SNAP^{14,15} indicates consistently strong internal consistency and test-retest reliabilities across samples. Convergent validity has been established via strong correlations between the SNAP and existing inventories, and criterion-related validity has been demonstrated in high correlations between SNAP results and extensive clinical interviews in diagnosing personality disorders.

Procedure

Inclusion in the current study required: being of the military rank of Chief Petty Officer or above, no self-reported history of psychiatric problems, and a willingness to voluntarily participate in the study (no incentives were offered and all sailors were free to decline to participate). Subjects meeting the above criteria were asked to complete a demographic questionnaire and the SNAP until 100 profiles had been obtained. All testing was completed anonymously in a single session and all profiles were computer scored.

Results

Demographic Data

Table I offers a brief summary of relevant demographic data. The majority of subjects in this study (75%) were married. Most

TABLE I
DEMOGRAPHIC CHARACTERISTICS OF THE SAMPLE

Characteristic	Percent ^a	Characteristic	Percent ^a
Marital status		Race	
Never married	13	White	89
First married	53	Black	03
Remarried	22	Hispanic	02
Separated	03	Filipino	02
Divorced	09	Other	04
Education		Religion	
High school	74	Protestant	37
Associate's	18	Catholic	34
Bachelor's	08	Other	29

^aN = 100.

were white (89%) and had a high school education (74%). These data suggest that the sample was generally representative of senior enlisted submarine personnel. The mean job performance evaluation for 1991-1993 was 3.99 on a 4.0 scale. Thus, consistent with their high enlisted rank and historic high performance as enlisted personnel, recent evaluations were uniformly outstanding.

Personality Profile Data

The attitude of the subjects toward taking the SNAP was reflected in the six validity scales, all of which were within normal limits. As a group, the subjects approached the test in an open and honest manner. Given the limited sample size and the exploratory nature of the study, data were analyzed descriptively in the interest of elucidating high-frequency personality traits in this high-success submarine sample.

Table II presents the means and standard deviations for the SNAP personality trait scales. The mean score for the norm sample on each scale is 50, with scores below 35 suggesting significant absence of a trait and scores above 65 indicative of the clear presence of a personality trait. Table II shows that all mean SNAP scores for this sample were within the normal range (35-65). As a group these men did not manifest a significant variation from other samples, and none of the mean scores approached the cutoff for a prevalent personality style. Nonetheless, three scales (detachment = 51.83; propriety = 51.60; and workaholism = 55.48) emerged as most descriptive of this sample.

Table III presents means and standard deviations for each of the SNAP diagnostic scales. Frequency tabulations for the number of subjects scoring over 65 on each scale are also presented. A score of greater than 65 suggests the strong possibility that the subject meets diagnostic criteria for a personality disorder.¹⁶ Contrary to expectation, 37% of the sample obtained scale scores that exceeded the clinically significant cutoff of 65, suggesting the strong possibility of a personality disorder. Only 6% of the sample exceeded the cutoff on more than one diagnostic scale. Frequency tabulations indicate that significant elevations were most commonly obtained on the antisocial ($f = 15$), obsessive-compulsive ($f = 9$), and avoidant ($f = 8$) scales.

TABLE II
MEANS AND STANDARD DEVIATIONS FOR SNAP PERSONALITY TRAIT SCALES^a

Scale	Mean	SD
Mistrust	43.25	9.68
Manipulativeness	38.82	6.21
Aggression	45.41	9.01
Self-harm	45.59	6.30
Eccentric perceptions	40.77	7.24
Dependency	44.00	7.01
Exhibitionism	41.34	9.66
Entitlement	44.16	9.49
Detachment	51.83	10.91
Impulsivity	44.89	8.38
Propriety	51.60	8.37
Workaholism	55.48	9.20

^aN = 100.

TABLE III

MEANS STANDARD DEVIATIONS, AND FREQUENCY OF DISORDER TABULATIONS FOR SNAP DIAGNOSTIC SCALES^a

Scale	Mean	SD	Frequency
Paranoid	42.75	9.97	1
Schizoid	52.41	10.52	3
Schizotypal	42.29	9.99	3
Antisocial	42.64	7.21	15
Borderline	42.89	7.88	1
Histrionic	38.53	9.47	3
Narcissistic	38.84	8.98	1
Avoidant	48.11	11.10	8
Dependent	41.83	6.24	0
Obsessive-compulsive	49.95	9.77	9
Passive-aggressiveness	41.97	8.68	2
Sadistic	43.94	7.34	2
Self-defeating	43.55	11.06	1

^aN = 100.

Discussion

The current sample of successful Navy submarine personnel obtained heterogeneous personality trait profiles that clustered around the mean for other normal populations sampled. The three trait scales most descriptive of this sample (detachment, propriety, and workaholism) appear contextually appropriate when viewed from an environmental demand perspective.¹⁴ Detachment is indicative of persons described as aloof and distant. They report few strong emotions and generally keep to themselves. The propriety scale suggests concern with proper standards of conduct for the self and the community. These persons emphasize the importance of following social conventions and are offended when others violate social rules. Workaholism is indicative of those who place work above all else and neglect their friends and family to do so. They are perfectionists who feel they must finish everything they start and do not consider a job finished until it is perfect. The lowest mean scale score in the current sample was obtained on the manipulativeness scale (38.82), suggesting that these men tend to strongly respect the property of others and do not try to avoid work or to bend the truth to their advantage.

In reviewing these trait descriptions, it is clear that each is highly congruent with the environmental requirements of individual and relational functioning on a submarine. As a group, successful submariners require less social stimulation, are highly conscious and respectful of community standards, and are unrelenting in their self-scrutiny and personal expectations of flawless performance.

Diagnostic scale (personality disorder) results were contrary to the authors' expectations. Thirty-seven percent of the sample obtained diagnostic scale scores, indicative of personality pathology on at least one scale. However, given the previous discussion of salient traits among this sample and the fact that the vast majority of the elevations occurred on three scales (antisocial, obsessive-compulsive, and avoidant), these findings are considerably less surprising and quite congruent with careful consideration of the demands of the submarine milieu.

Fifteen percent of the sample met SNAP criteria for antisocial personality disorder (suggesting the strong possibility of this clinical diagnosis). Similar results have been obtained previ-

ously by researchers⁶ who found that 14% of their submarine sample presented with antisocial character pathology. Nonetheless, several qualities of the antisocial personality type appear quite congruent with adaptation to submarines. For example, antisocial persons tend to report little fear and enjoy taking risks.¹⁷ In addition, such persons tend to enjoy the exercise of power and authority over subordinates. These findings are not incongruent with the tendency toward propriety among these men, as the more dysfunctional qualities of antisocial functioning, such as disregard for the rights of others and hostility in relationships,^{11,18} appear less likely to manifest themselves among this group. Submarine environments require senior crew members to work collaboratively with junior personnel, display group loyalty, and reliably lead subordinates in taxing situations.¹⁹

Nine percent of the sample met SNAP criteria for obsessive-compulsive personality disorder, suggesting that they display preoccupation with orderliness, perfectionism, and control.¹¹ Again, such personality features may be quite adaptive, even when pronounced, given the marked complexity of the nuclear power, communication, weapons, air revitalization, and navigational systems on submarines. In fact, extreme attention to detail in these circumstances may save lives and is typically highly rewarded.

Finally, eight percent of this sample met SNAP criteria for avoidant personality disorder. Individuals with this syndrome display a pattern of social inhibition, feelings of inadequacy, and hypersensitivity to negative evaluation.^{11,14} It is unclear why this often maladaptive personality syndrome is so frequently represented among successful submarine personnel. It may be that their obsessive and workaholic traits are driven to some extent by fear of negative evaluation. Furthermore, the social isolation of submarine life may serve to mitigate fears of social situations and potential rejection.

In summary, successful enlisted submarine personnel evaluated in this study were best described as detached, conscious of standards, and often workaholic. Although free of overt pathology, these men appeared to disproportionately meet psychometric assessment criteria for antisocial, obsessive-compulsive, and avoidant personality disorders. Although technically meeting criteria for a disorder, it is likely that these persons were low on the severity spectrum. This would be congruent with current models of personality, which view personality as a continuum, with disorders denoting exaggerated extensions of normal personality traits.^{19,20}

This study appears to support utilization of psychometrically sound psychological tests in screening military personnel for specific duty stations.²¹ The current findings offer preliminary data regarding the profiles of adaptive submarine personnel. These data, when extended, could factor prominently in selection decisions based on psychological goodness of fit. Screening out individuals who are unlikely to adapt to a specific environment would have beneficial consequences. For example, enhanced retention rates might be anticipated when personnel are appropriately matched with a work environment congruent with their personality traits and adaptive skills.

Future research should focus on replication and extension of these findings with successful military personnel in varied environments. Additional research regarding the personality traits

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of submariners should include officers and junior enlisted. The validity of these findings would be further enhanced by cross-validating replications utilizing other assessment tools. The SNAP, like all self-report inventories, shares the limitation of potential response bias or distortion among subjects. Augmentation of testing data with clinical interviews is critical for ensuring accurate clinical diagnoses.

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